

# Symptoms of Depression During and After Pregnancy

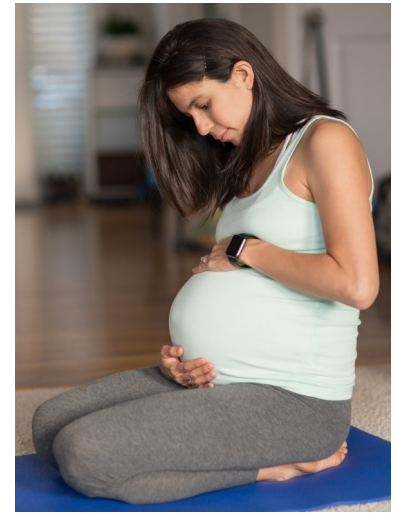
Summer 2018

## KEY POINTS

One in five California women who recently gave birth experience symptoms of depression during or after pregnancy, according to the MIHA survey. That translates to about 100,000 women a year.

All women are at risk for symptoms of perinatal depression; however, Black or Latina women, women who have low incomes or those who have experienced hardships in their childhood or during pregnancy are at heightened risk of having symptoms of depression.

Depression during pregnancy is likely to lead to depression after the baby is born and is associated with serious risks to the mother and infant. Though not all women with symptoms of depression will be diagnosed with clinical depression, screening and appropriate care should be provided during prenatal care.



## BACKGROUND

Emotional well-being during and after pregnancy is central to women's health, and to their infants' development. Depression during or after pregnancy is one of several perinatal mood and anxiety disorders that commonly affect women during this period. Perinatal depression is characterized by intense feelings of sadness, anxiety or despair during or after pregnancy that lasts two weeks or longer and prevents women from doing their daily tasks. It can occur at any time from conception through one year postpartum.<sup>1</sup> As a serious pregnancy complication requiring treatment, depression differs from the "baby blues," which are common minor changes in mood that occur in the first few days after childbirth.<sup>1</sup>

Untreated depression can lead to negative outcomes for both mother and baby. Depression that occurs during pregnancy increases the risk of preeclampsia, low birth weight and premature delivery.<sup>2-5</sup> Depression after the baby is born can negatively impact women's breastfeeding practices and ability to bond with their infants.<sup>6-7</sup> Depression at any point during the perinatal period increases the risk of long term cognitive and emotional development problems in children.<sup>3,8</sup> Among mothers, it increases the risk of chronic depression and suicide once the baby is born.<sup>9-10</sup>

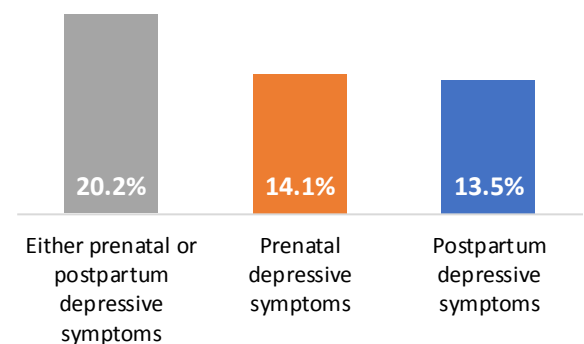
With the appropriate help, most women can experience full recovery.<sup>11</sup> National guidelines

recommend that women receive screening for depression throughout their prenatal and postpartum care using validated tools.<sup>12</sup> Guidelines emphasize that all women in need of care should have access to services that are affordable, culturally and linguistically appropriate, and that acknowledge the history of trauma common among women with depression.<sup>12-15</sup>

### How are California women fairing?

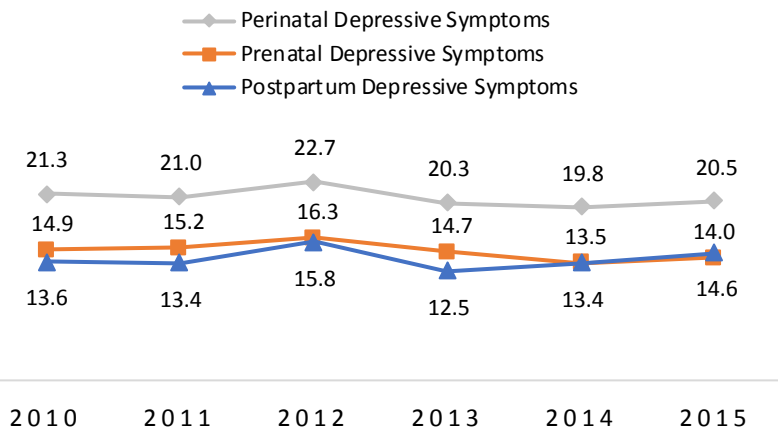
According to the Maternal and Infant Health Assessment (MIHA) survey, one in five California women with a recent birth reported symptoms during or after pregnancy that could be consistent with perinatal depression. That's approximately 100,000 women per year. Further, depressive symptoms were at least as common during pregnancy (14.1 percent) as they were postpartum (13.5 percent).

### Symptoms of depression among California women with a recent live birth, 2013-2015



# SYMPTOMS OF DEPRESSION OVER TIME IN CALIFORNIA

Percentage of women with symptoms of depression by year, 2010-2015



Maternal symptoms of depression have remained stable in California since 2010. In order to reduce the percent of women who experience perinatal depressive symptoms in the future, attention should be focused on primary prevention activities.

## DEFINITIONS

In this MIHA Data Brief, “**symptoms of depression**” (or “depressive symptoms”) are defined as a period of two weeks or longer when a woman self-reported experiencing two sets of symptoms: a) feeling sad, empty or depressed for most of the day and b) loss of interest in most things that she usually enjoyed (like work, hobbies, or personal relationships). Depressive symptoms were measured prenatally (during pregnancy) and postpartum (from birth until she completed the survey, anywhere from two to nine months after delivery). “**Perinatal depressive symptoms**” refer to symptoms of depression experienced during pregnancy, during postpartum or during both time periods.

Questions assessing symptoms of depression were adapted from the two-item Patient Health Questionnaire-2. Research supports the use of this two-item screener to identify pregnant women who would likely screen positive using a longer scale and go on to receive a clinical diagnosis.<sup>16-17</sup> This measure does not provide an estimate of depression diagnoses. A clinical diagnosis of depression requires at least five of nine symptoms that impair ability to function over a period of at least two weeks.<sup>18</sup> Perinatal depression is one of many **perinatal mood and anxiety disorders** that also include anxiety, bipolar disorder, obsessive compulsive disorder and posttraumatic stress disorder.

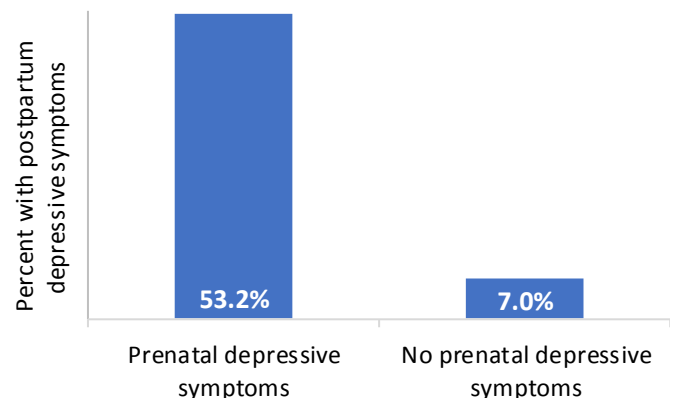
## RELATIONSHIP BETWEEN PRENATAL AND POSTPARTUM SYMPTOMS OF DEPRESSION

While depression during pregnancy receives less attention, it’s a leading risk factor for postpartum depression.<sup>19-20</sup>

Among women who experienced prenatal symptoms of depression, 53.2 percent went on to report postpartum symptoms. In contrast, only 7.0 percent of women with no symptoms of depression in the prenatal period experienced them postpartum.

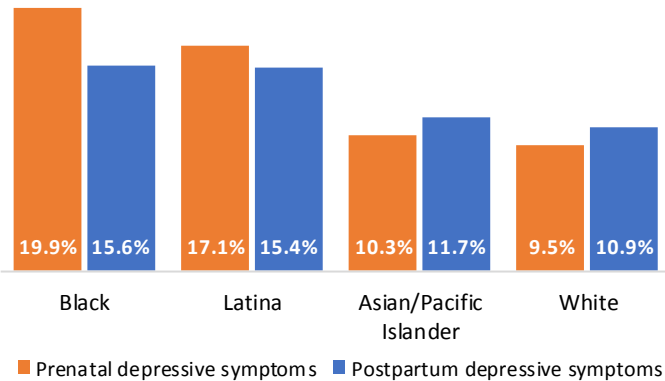
In order to have the best chance of improving outcomes for the mother and infant, efforts to identify and intervene should begin with prenatal care, when women have increased contact with the healthcare system.<sup>21-22</sup> Routine screening and treatment that begins early in pregnancy can facilitate timely recognition of symptoms of depression and prevention of adverse outcomes.<sup>21-22</sup>

Postpartum symptoms of depression by experience of prenatal depressive symptoms, 2013-2015



## RACIAL/ETHNIC DISPARITIES

Symptoms of depression by race/ethnicity, 2013-2015



Black and Latina women experience the highest percentage of depressive symptoms of all racial/ethnic groups during both the prenatal and postpartum periods. Disparities are particularly evident for prenatal symptoms of depression, which are twice as common for Black (19.9 percent) and Latina (17.1 percent) women compared to White (9.5 percent) and Asian/Pacific Islander (10.3 percent) women.

Although depressive symptoms are most common among Black and Latina women, their use of maternal mental health care is lower than white women's.<sup>23</sup> Efforts to improve access to high quality, culturally responsive mental health services can ensure that more Black and Latina women receive the care they need.<sup>24</sup> Strategies should address the shortage of providers qualified to treat perinatal depression and the disjointed pathway from screening to treatment.<sup>14</sup>

*Women who are Black or Latina, or have low incomes or Medi-Cal for prenatal care are more likely to have prenatal and postpartum symptoms of depression. However, these women are less likely to receive the care they need.*

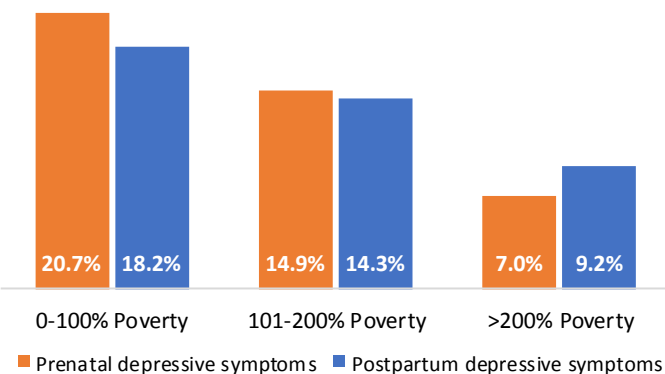
## DISPARITIES BY INCOME AND INSURANCE TYPE

Poverty and low income are well-documented risk factors for maternal mental health conditions.<sup>25</sup> In California, prenatal and postpartum symptoms of depression are highest among women with incomes below poverty (20.7 percent and 18.2 percent, respectively). Prevalence of depressive symptoms declines as income increases.

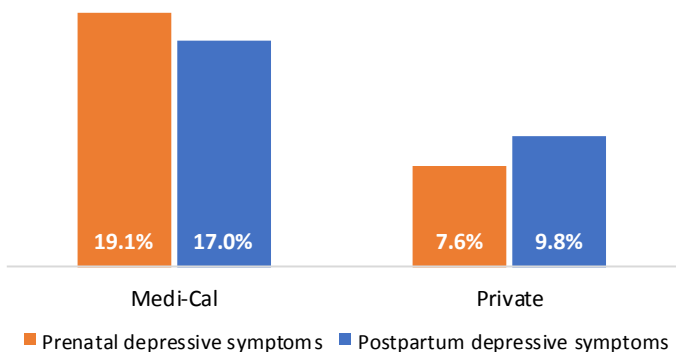
Women with incomes below 200 percent of the Federal Poverty Guideline (\$24,250 for a family of four) account for well over half of the women giving birth in California.<sup>26-27</sup> Reducing barriers to mental health services for low-income women could positively impact a large segment of California's mothers and infants.

Women with Medi-Cal for prenatal care had significantly higher levels of depressive symptoms during and after pregnancy (19.1 percent prenatal, 17.0 percent postpartum) compared to women with private insurance (7.6 percent prenatal, 9.8 percent postpartum). About half of women giving birth in California have Medi-Cal for prenatal care due to the expanded income eligibility for pregnant women.<sup>27-28</sup> Medi-Cal coverage during pregnancy includes mental health care services,<sup>29-30</sup> offering an opportunity for low-income women to access care. This is particularly important for women who do not have coverage for mental health services before or after pregnancy.

Symptoms of depression by income, 2013-2015



Symptoms of depression by prenatal insurance type, 2013-2015



## CHILDHOOD HARDSHIPS AND STRESSORS DURING PREGNANCY

**Childhood hardships** are traumatic events that can disrupt family environments and result in toxic stress for children,<sup>31</sup> such as financial hardships, parental substance use, or foster care placement. (See Appendix B for a complete list of hardships included in the summary childhood hardships measure.) Adversity in childhood has been linked with adverse adult physical and mental health.<sup>31</sup>

The effect of childhood hardships was cumulative among California women; as the number of childhood hardships increased, so did the percentage of women with depressive symptoms. Prenatal and postpartum symptoms of depression were lowest among women who experienced no childhood hardships (9.2 percent and 9.5 percent, respectively), and highest among women who experienced four or more childhood hardships (25.5 percent and 25.1 percent, respectively).

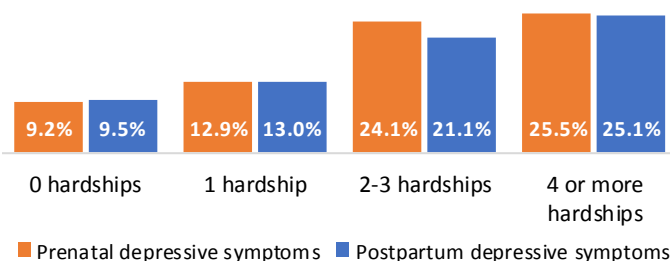
**Pregnancy stressors** are significant life events or conditions during pregnancy, such as intimate partner violence, lack of practical or social support, separation, housing insecurity, or job

loss, that can lead to biological stress responses associated with depression.<sup>3, 32-33</sup> (See Appendix B for a complete list of stressors included in the summary measure of life stressors during pregnancy.)

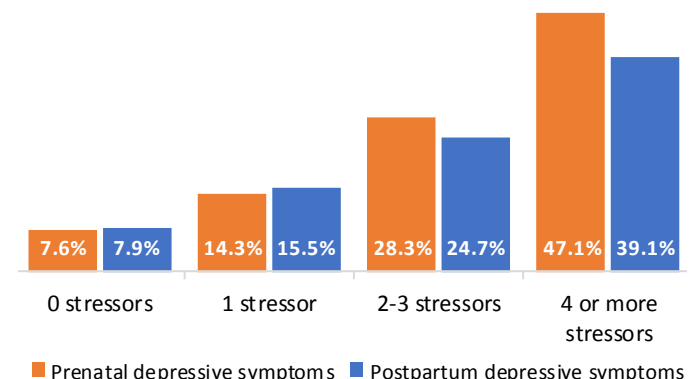
As the total number of stressors during pregnancy increases, the percentages of both prenatal and postpartum depressive symptoms increase as well. Among California women who had no stressors during pregnancy, symptoms of depression during both pregnancy (7.6 percent) and postpartum (7.9 percent) were relatively uncommon. In contrast, women with four or more stressors experienced very high percentages of depressive symptoms during pregnancy (47.1 percent) and postpartum (39.1 percent).

Given the high percentages of depressive symptoms among women with hardships during childhood and pregnancy, mental health services should promote recovery and resilience for women impacted by trauma.<sup>15</sup>

Symptoms of depression by number of childhood hardships, 2013-2015



Symptoms of depression by number of pregnancy stressors, 2013-2015



### STRIVING FOR EQUITY IN PERINATAL MENTAL HEALTH

The underlying causes of the mental health disparities identified in this Brief are multifaceted. For example, low income is a direct cause of several childhood and pregnancy stressors, such as homelessness and food insecurity, and can increase the risk of several others, such as intimate partner violence during pregnancy, through more complex pathways.<sup>34</sup> Institutional racism (the practices of social and political institutions that result in unfair treatment of Black, Latina and other minority groups) creates financial and traumatic life stressors and likely plays a role in explaining racial and ethnic disparities.<sup>35</sup> Interpersonal racism is an additional source of chronic stress for Black and Latina women, and has been linked to mental health conditions.<sup>36-37</sup> Achievement of emotional and mental well-being for all California women during and after their pregnancies requires action to address these upstream factors that result in worse outcomes for women with low incomes and women of color.

## COUNTY AND REGIONAL DIFFERENCES

There was substantial variation in prevalence of prenatal and postpartum symptoms of depression by county and by multi-county MIHA Region. For prenatal depressive symptoms, percentages ranged from a high of 20.2 percent in Stanislaus County to a low of 8.5 percent in San Mateo County. For postpartum depressive symptoms, the highest percentage was in San Joaquin County (18.8 percent) and the lowest was in Yolo County (9.8 percent).

*“A lot of this emotional stuff is not given enough credence. After delivery I was given surveys about postpartum depression, but I know a lot of women are experiencing that during pregnancy as well, and they're not really asking about that.” - MIHA 2014 Respondent*

## MCAH DIVISION EFFORTS TO ADDRESS PERINATAL DEPRESSION

As part of the Title V Maternal and Child Health Block Grant Strategic Plan, the California Department of Public Health MCAH Division has developed strategies to improve maternal mental health by raising awareness, developing resources, implementing screening and referral processes and enhancing collaboration. Over two thirds of Local MCAH Programs have prioritized action to improve maternal mental health systems of care. In addition, in 2015, the MCAH Division participated in a statewide Task Force to improve early identification and services for women with maternal mental health conditions.

Many MCAH Division programs screen for symptoms of depression using validated tools, and provide appropriate referrals and ancillary support for women in need of care. Also, programs tailor primary prevention and support activities to address the social factors that lead to poor mental health and promote the development of individual protective factors.



Among MIHA Regions, the North/Mountain MIHA Region had the highest percentages of both prenatal (17.2 percent) and postpartum (17.1 percent) symptoms of depression, while the San Francisco Bay Area had the lowest percentages of both prenatal (12.2 percent) and postpartum depressive symptoms (11.6 percent).

See Appendix C for a table of prenatal, postpartum and perinatal depressive symptoms for the 35 counties with the largest numbers of births and for the MIHA regions.

**Adolescent Family Life Program** case managers provide comprehensive support to expectant and parenting youth using a positive youth development approach. To enhance mental health and build resiliency, the program works to ensure basic needs are met, helps youth to create networks of support, and fosters coping and emotional regulation skills.

**The Black Infant Health Program** conducts group sessions with complementary case management that provide social support while helping women develop skills to reduce stress, enhance emotional well-being and develop life skills in a culturally affirming environment that honors the history of Black women.

**The California Home Visiting Program** funds home visiting models throughout the state that use a strengths-based approach to build positive parenting skills and enhance the mother-baby relationship. Home visitors tailor their efforts to each family's needs, addressing a range of issues, including financial struggles, familial relationships, housing instability and navigating the health care system. Services that directly address emotional well-being include support groups, socialization groups and mental health consultation.

**The Comprehensive Perinatal Services Program (CPSP)** is a Medi-Cal program that provides psychosocial, nutrition and health education services, in addition to obstetric care. CPSP providers screen for depressive symptoms throughout pregnancy and the postpartum period using validated tools or assessments and provide enhanced support to ensure that women in need of additional services are linked to a provider.



## METHODS

The Maternal and Infant Health Assessment (MIHA) is a statewide-representative survey of women with recent live births in California, conducted annually since 1999. The survey collects self-reported information about maternal and infant experiences and about maternal attitudes and behaviors before, during and shortly after pregnancy.

MIHA is a stratified random sample of English- or Spanish-speaking women. MIHA data are weighted to represent all women with a live birth in California, excluding women who were non-residents, were younger than 15 years old at delivery, had a multiple birth greater than triplets, or had a missing address on the birth certificate.

In this brief, data from MIHA 2013-2015 were combined, resulting in a statewide sample size of 20,762. The appendices includes confidence intervals and annual population estimates for all data presented. See the Technical Notes on the MIHA website ([www.cdph.ca.gov/MIHA](http://www.cdph.ca.gov/MIHA)) for information on weighting, comparability to prior years and technical definitions.

MIHA is a collaboration between California's Maternal, Child and Adolescent Health (MCAH) and Women, Infants and Children (WIC) Divisions, and UC San Francisco's Center on Social Disparities in Health.

## REFERENCES

1. Best Practice Guidelines for Mental Health Disorders in the Perinatal Period. 2014. British Columbia Mental Health and Substance Use Services. BC Reproductive Mental Health Program and Perinatal Services BC.
2. Kim DR, Sockol LE, Sammel M, Kelly C, Moseley M et al. Elevated risk of obstetric outcomes in pregnant women with depression. *Arch Womens Ment Health* 2013; 16(6).
3. Dunkel Schetter C and Tanner L. Anxiety, depression and stress in pregnancy: implications for mothers, children, research and practice. *Curr Opin Psychiatry* 2012; 25(2):141-148.
4. Grigoriadis S, VonderPorten EH, Mamisashvili L et al. The impact of maternal depression during pregnancy on perinatal outcomes: a systematic review and meta-analysis. *J Clin Psychiatry* 2012; 74 (4):321-341.
5. Grote NK, Bridge JA, Gavin AR et al. A meta-analysis of depression during pregnancy and the risk of preterm birth, low birth weight, and intrauterine growth restriction. *Arch Gen Psychiatry* 2010; 67(10):1012-1024.
6. Wouk K, Stuebe AM, Meltzer-Brody S. Postpartum mental health and breastfeeding practices: An analysis using the 2010-2011 Pregnancy Risk Assessment Monitoring System. *Matern Child Health J.* 2017; 21(3): 636-647.
7. Nonnenmacher N, Noe D, Ehrenthal JC et al. Postpartum bonding: the impact of maternal depression and adult attachment style. *Arch Women Ment health* 2016; 19: 927-935.
8. Center on the Developing Child. Maternal depression can undermine the development of young children: Working Paper 8. National Scientific Council on the Developing Child 2009. Harvard University.
9. Lindahl V, Pearson JL, Colpe L. Prevalence of suicidality during pregnancy and the postpartum. *Arch Womens Ment Health* 2005; 8:77-87.
10. Woolhouse H, Gartland D, Mensah F et al. Maternal depression from early pregnancy to 4 years postpartum in a prospective pregnancy cohort study: implications for primary health care. *BJOG* 2015; 122: 312-321.
11. Cox EQ, Sowa NA, Meltzer-Brody SE, Gaynes BN. The perinatal depression treatment cascade: baby steps toward improving outcomes. *J Clin Psychiatry* 2016; 77(9): 1189-1200.
12. Siu AL, US Preventative Services Task Force. Screening depression in adults. *JAMA* 2016; 315(4)380-387.
13. Kending S, Keats JP, Hoffman MC et al. Consensus bundle on maternal mental health. *Obstet Gynecol* 2017; 129 (3) 422-430.
14. California Task Force on the Status of Maternal Mental Health Care. California's Strategic Plan: A catalyst for shifting statewide systems to improve across California and beyond. April 2017.
15. Substance Abuse and Mental Health Services Administration. SAMHSA's Concept of Trauma and Guidance for a Trauma-Informed Approach. HHS Publication No. (SMA) 14-4884. Rockville, MD: Substance Abuse and Mental Health Services Administration, 2014.
16. Smith MV, Gotman N, Lin H, Yonkers KA. Do the PHQ-8 and the PHQ-2 accurately screen for depressive disorder in a sample of pregnant women? *Gen Hosp Psychiatry* 2010; 32: 544-548.
17. O'Hara MW, Stuart S, Watson D, Dietz PM, et al. Brief scales to detect postpartum depression and anxiety symptoms. *J Womens Health* 2012; 21(12): 1237-1243.
18. American Psychiatric Association. Diagnostic and statistical manual of mental disorder. 5th ed. Washington, DC: American Psychiatric Association; 2013.
19. Leigh B and Milgrom J. Risk factors for antenatal depression, postnatal depression and parenting stress. *BMC Psychiatry* 2008; 8(24).
20. Milgrom J, Gemmill AW, Bilszta JL, Hayes B. Antenatal risk factors for postnatal depression: a large prospective study. *J of Affective Disorders* 2008; 108: 147-157.
21. O'Hara MW and Wisner KL. Perinatal mental illness: definition, description and aetiology. *Best Pract Res Clin Obstet Gynaecol* 2014; 28 (1): 3-12.
22. The American College of Obstetricians and Gynecologists. Screening for perinatal depression. Committee Opinion 2015; 630.
23. Kozhimannil KB, Trinacty CM, Bush AB et al. Racial and ethnic disparities in postpartum depression care among low-income women. *Psychiatr Serv* 2011; 62(6): 619-625.
24. California Pan-Ethnic Health Network. California Reducing Disparities Project: Strategic plan to reduce mental health disparities. November 2014. Accessed June 15, 2018: <http://cpehn.org/sites/default/files/crdpstrategicplan2014final2.pdf>
25. Lancaster CA, Gold KJ, Flynn HA et al. Risk factors for depressive symptoms during pregnancy: a systematic review. *Am J Obstet Gynecol* 2010; 202 (1): 5-14.
26. Department of Health and Human Services, Office of the Secretary. Annual Update of the HHS Poverty Guidelines. *Federal Register* 2015; 80 (14). Accessed on June 15, 2018: <https://aspe.hhs.gov/2015-poverty-guidelines>.
27. Maternal and Infant Health Assessment (MIHA) Survey Data Snapshots, 2013-2015. California Department of Public Health; 2018.
28. California Department of Health Care Services. Medi-Cal Pregnant Women Fact Sheet. Accessed June 15, 2018: [http://www.dhcs.ca.gov/services/medi-cal/Documents/Pregnancy\\_Fact\\_Sheet\\_Chart.pdf](http://www.dhcs.ca.gov/services/medi-cal/Documents/Pregnancy_Fact_Sheet_Chart.pdf)
29. Covered California. Health Coverage Options for Pregnant Women. Accessed June 15, 2018: <https://www.coveredca.com/individuals-and-families/getting-covered/pregnant-women/>
30. California Department of Health Care Services. Medi-Cal Access Program: What services are covered in MCAP?. Accessed June 15, 2018: <http://mcap.dhcs.ca.gov/Services/>
31. Anda RF, Felitti VJ, Bremner JD et al. The enduring effects of abuse and related adverse experiences in childhood. *Eur Arch Psychiatry Clin Neurosci* 2006; 256: 174-186.
32. Jaremka LM, Lindgren ME, Kiecolt-Glaser JK. Synergistic relationships among stress, depression and troubled relationships: insights from psychoneuroimmunology. *Depress Anxiety* 2013; 30(4).
33. Rubin LP. Maternal and pediatric health and disease: integrating biopsychosocial models and epigenetics. *Pediatric Research* 2016; 79(1): 127-135.
34. Braveman P, Heck K, Etger S, Rinki C et al. Economic hardships in childhood: a neglected issue in ACE studies? *Matern Child Health J* 2017; 22(3): 308-317.
35. Bailey ZD, Krieger N, Agenor M, et al. Structural racism and health inequities in the USA: evidence and interventions. *Lancet* 2017; 389 (10077): 1453-1463.
36. Ward JB, Feinstein L, Vines AI, et al. Perceived discrimination and depressive symptoms among US Latinos: the modifying role of educational attainment. *Ethn Health* 2017; 12: 1-16.
37. Williams DR and Williams-Morris R. Racism and Mental Health: The African American experience. *Ethnicity & Health* 2010; 5:3-4, 243-268.

## APPENDIX A: PRENATAL, POSTPARTUM AND PERINATAL SYMPTOMS OF DEPRESSION BY YEAR

Year	Prenatal Symptoms of Depression			Postpartum Symptoms of Depression			Perinatal Symptoms of Depression					
	Prevalence Estimate (%)	95% Confidence Interval		Annual Population Estimate	Prevalence Estimate (%)	95% Confidence Interval		Annual Population Estimate	Prevalence Estimate (%)	95% Confidence Interval		Annual Population Estimate
2010	14.9	13.4	- 16.3	74,200	13.6	12.1	- 15.1	67,900	21.3	19.6	- 23.1	106,300
2011	15.2	13.6	- 16.7	74,700	13.4	12.0	- 14.8	66,000	21.0	19.3	- 22.7	103,200
2012	16.3	14.7	- 17.9	80,500	15.8	14.2	- 17.3	77,700	22.7	20.9	- 24.5	112,000
2013	14.7	13.0	- 16.4	71,100	12.5	11.0	- 14.0	60,400	20.3	18.4	- 22.2	98,000
2014	13.5	11.9	- 15.1	66,700	13.4	11.8	- 15.1	66,100	19.8	17.9	- 21.7	97,100
2015	14.0	12.4	- 15.6	67,600	14.6	13.0	- 16.3	70,500	20.5	18.6	- 22.3	98,500

Notes: MIHA is an annual population-based survey of California resident women with a live birth. Prevalence estimate, 95% confidence interval and annual population estimate of women with symptoms of depression in a given year are weighted to represent all women with a live birth who resided in California in 2010-2015. See the Technical Notes for information on weighting, comparability to prior years and technical definitions. Visit the MIHA website at [www.cdph.ca.gov/MIHA](http://www.cdph.ca.gov/MIHA).

## APPENDIX B: PRENATAL, POSTPARTUM AND PERINATAL SYMPTOMS OF DEPRESSION BY MATERNAL CHARACTERISTICS AND EXPERIENCES, MIHA 2013-2015

	Prenatal Symptoms of Depression				Postpartum Symptoms of Depression				Perinatal Symptoms of Depression			
	Prevalence Estimate (%)	95% Confidence Interval		Annual Population Estimate	Prevalence Estimate (%)	95% Confidence Interval		Annual Population Estimate	Prevalence Estimate (%)	95% Confidence Interval		Annual Population Estimate
<b>Total</b>	14.1	13.1	- 15.0	68,500	13.5	12.6	- 14.4	65,700	20.2	19.1	- 21.3	97,900
<b>Maternal Characteristics</b>												
<b>Race/Ethnicity</b>												
Black	19.9	16.8	- 23.0	5,400	15.6	13.0	- 18.2	4,200	24.7	21.3	- 28.1	6,600
Latina	17.1	15.6	- 18.7	40,100	15.4	13.9	- 16.8	35,900	23.6	21.9	- 25.4	55,200
Asian/Pacific Islander	10.3	7.7	- 12.8	7,500	11.7	9.1	- 14.3	8,600	15.3	12.3	- 18.2	11,200
White	9.5	8.3	- 10.8	13,300	10.9	9.5	- 12.3	15,200	15.9	14.2	- 17.5	22,100
<b>Income (% of FPG)</b>												
0-100%	20.7	18.9	- 22.6	37,600	18.2	16.5	- 20.0	33,100	27.5	25.4	- 29.5	49,700
101-200%	14.9	12.7	- 17.1	14,100	14.3	12.1	- 16.5	13,600	20.9	18.4	- 23.5	19,800
>200%	7.0	5.8	- 8.1	12,400	9.2	8.0	- 10.5	16,300	12.9	11.4	- 14.4	22,800
<b>Prenatal insurance</b>												
Medi-Cal	19.1	17.6	- 20.6	46,400	17.0	15.6	- 18.5	41,300	25.4	23.7	- 27.1	61,500
Private	7.6	6.6	- 8.6	16,200	9.8	8.6	- 11.0	21,000	13.4	12.1	- 14.8	28,800
<b>Maternal Experiences</b>												
<b>Childhood hardships</b>												
Parents divorced or separated	17.9	16.0	- 19.8	25,400	16.9	15.1	- 18.7	23,900	25.0	22.9	- 27.2	35,400
Parent had trouble with law or went to jail	21.8	18.6	- 25.0	10,300	21.2	17.9	- 24.5	9,900	31.8	28.0	- 35.6	15,000
Family moved due to problems paying rent or mortgage	22.9	20.0	- 25.9	15,500	21.2	18.4	- 24.1	14,300	31.7	28.4	- 35.0	21,400
Parent had serious drinking or drug problem	23.3	20.4	- 26.3	16,200	23.4	20.5	- 26.3	16,300	33.0	29.8	- 36.3	22,900
Was placed in foster care	23.5	18.4	- 28.6	3,400	24.0	18.1	- 29.9	3,500	36.1	29.6	- 42.6	5,200
Often difficult paying for basic needs	24.6	22.0	- 27.2	24,200	22.8	20.3	- 25.4	22,500	33.4	30.6	- 36.3	32,800
Family experienced hunger	30.7	26.8	- 34.6	13,400	26.7	22.9	- 30.4	11,700	40.0	35.8	- 44.2	17,500
<b>Number of childhood hardships</b>												
0 hardships	9.2	8.1	- 10.3	23,000	9.5	8.3	- 10.6	23,600	14.1	12.8	- 15.5	35,300
1 hardship	12.9	11.0	- 14.7	13,800	13.0	11.1	- 14.9	13,900	19.2	16.9	- 21.4	20,500
2-3 hardships	24.1	21.1	- 27.1	19,600	21.1	18.3	- 23.9	17,200	31.4	28.2	- 34.6	25,500
4 or more hardships	25.5	22.0	- 29.1	9,000	25.1	21.4	- 28.8	8,800	36.6	32.4	- 40.8	12,800
<b>Pregnancy stressors</b>												
Woman or partner had pay or hours cut back	21.8	19.0	- 24.6	11,900	22.3	19.3	- 25.3	12,200	31.4	28.0	- 34.7	17,100
Woman or partner lost job	26.1	22.9	- 29.2	17,900	24.3	21.2	- 27.5	16,700	33.9	30.5	- 37.3	23,200
Moved due to problems paying rent or mortgage	29.5	24.8	- 34.3	9,200	28.0	23.2	- 32.7	8,700	38.8	33.6	- 44.0	12,000
Food insecurity during pregnancy	31.0	27.9	- 34.2	23,100	27.4	24.3	- 30.5	20,500	39.5	36.1	- 42.9	29,500
Someone very close had a bad problem with drinking or drugs	33.9	28.8	- 39.0	8,900	27.7	23.1	- 32.3	7,300	42.0	36.7	- 47.4	11,100
Woman or partner went to jail	35.0	27.1	- 43.0	3,500	24.6	18.3	- 30.9	2,500	43.6	35.5	- 51.7	4,400
Homeless or did not have a regular place to sleep at night	37.0	29.8	- 44.2	5,300	29.5	23.0	- 35.9	4,200	45.8	38.4	- 53.2	6,600
Became separated or divorced	39.7	34.6	- 44.7	13,400	27.0	22.4	- 31.5	9,100	45.9	40.7	- 51.0	15,400
Had no practical or emotional support	41.3	34.7	- 47.9	9,300	32.3	25.8	- 38.8	7,300	46.5	39.8	- 53.2	10,400
Physical or psychological intimate partner violence	44.6	39.5	- 49.6	15,100	36.0	31.1	- 40.9	12,200	53.8	48.7	- 58.8	18,200
<b>Number of pregnancy stressors</b>												
0 stressors	7.6	6.6	- 8.6	21,700	7.9	7.0	- 8.9	22,700	12.3	11.1	- 13.5	35,100
1 stressor	14.3	12.1	- 16.5	13,600	15.5	13.1	- 17.9	14,700	22.0	19.3	- 24.7	20,900
2-3 stressors	28.3	25.2	- 31.5	19,300	24.7	21.6	- 27.7	16,800	36.4	33.1	- 39.8	24,800
4 or more stressors	47.1	40.9	- 53.4	10,000	39.1	33.1	- 45.1	8,300	56.9	50.7	- 63.1	12,100

Notes: MIHA is an annual population-based survey of California resident women with a live birth. Data from MIHA 2013-2015 were combined, resulting in a statewide sample size of 20,762. Prevalence estimate, 95% confidence interval and annual population estimate are weighted to represent all women with a live birth who resided in California in 2013-2015. Annual population estimate is a three-year average and rounded to the nearest hundred. See the Technical Notes for information on weighting, comparability to prior years and technical definitions. Visit the MIHA website at [www.cdph.ca.gov/MIHA](http://www.cdph.ca.gov/MIHA).



# APPENDIX C: PRENATAL, POSTPARTUM AND PERINATAL SYMPTOMS OF DEPRESSION BY COUNTY AND REGION, MIHA 2013-2015

✓ better than rest of California \* worse than rest of California ♦ no statistical difference

	Prenatal Symptoms of Depression				Postpartum Symptoms of Depression				Perinatal Symptoms of Depression			
	Prevalence Estimate (%)	95% Confidence Interval		Annual Population Estimate	Prevalence Estimate (%)	95% Confidence Interval		Annual Population Estimate	Prevalence Estimate (%)	95% Confidence Interval		Annual Population Estimate
<b>California</b>	14.1	13.1	- 15.0	68,500	13.5	12.6	- 14.4	65,700	20.2	19.1	- 21.3	97,900
<b>Top 35 Birthing Counties</b>												
Alameda	♦	11.8	8.9 - 14.7	2,200	✓	10.1	7.3 - 12.9	1,900	♦	16.7	13.2 - 20.2	3,200
Butte	*	17.7	14.1 - 21.3	400	♦	16.2	12.9 - 19.5	400	*	25.4	21.3 - 29.4	600
Contra Costa	♦	13.5	10.4 - 16.6	1,600	♦	13.8	10.7 - 16.9	1,700	♦	20.2	16.6 - 23.9	2,500
El Dorado	✓	10.0	6.9 - 13.0	200	♦	10.5	7.8 - 13.3	200	♦	16.4	12.9 - 20.0	300
Fresno	♦	14.1	9.9 - 18.2	2,200	♦	12.2	8.5 - 16.0	1,900	♦	20.1	15.4 - 24.7	3,100
Humboldt	♦	15.0	11.3 - 18.7	200	*	17.8	14.0 - 21.7	300	♦	23.8	19.5 - 28.2	300
Imperial	*	19.6	15.6 - 23.6	600	♦	16.3	12.4 - 20.1	500	*	25.7	21.3 - 30.2	800
Kern	♦	15.6	11.5 - 19.8	2,100	♦	15.3	11.0 - 19.6	2,100	♦	21.8	17.1 - 26.5	3,000
Kings	*	19.1	15.3 - 22.9	400	*	17.6	13.8 - 21.4	400	*	26.4	22.2 - 30.7	600
Los Angeles	♦	13.9	11.2 - 16.5	17,400	♦	13.6	11.0 - 16.2	17,000	♦	20.9	17.8 - 24.0	26,000
Madera	♦	15.2	12.1 - 18.3	300	♦	16.2	12.8 - 19.7	400	♦	23.7	19.9 - 27.5	500
Marin	✓	10.8	8.3 - 13.4	200	✓	10.1	7.7 - 12.6	200	✓	16.0	13.1 - 19.0	400
Merced	♦	17.3	13.7 - 20.9	700	*	17.8	14.3 - 21.3	700	*	24.5	20.5 - 28.6	1,000
Monterey	*	17.7	14.1 - 21.2	1,100	♦	15.4	12.2 - 18.6	1,000	♦	23.4	19.6 - 27.3	1,500
Napa	♦	12.6	9.9 - 15.3	200	♦	12.1	9.2 - 15.0	200	♦	18.6	15.2 - 22.0	300
Orange	♦	14.9	10.9 - 18.9	5,500	♦	12.8	8.8 - 16.8	4,700	♦	20.2	15.5 - 24.8	7,400
Placer	♦	11.0	7.9 - 14.0	400	♦	14.6	11.4 - 17.9	500	♦	20.0	16.2 - 23.8	700
Riverside	♦	13.1	9.8 - 16.4	3,900	♦	16.0	12.3 - 19.7	4,700	♦	20.4	16.4 - 24.5	6,100
Sacramento	♦	13.1	10.1 - 16.0	2,500	♦	11.5	8.8 - 14.3	2,200	♦	18.4	15.0 - 21.8	3,500
San Bernardino	♦	14.5	11.0 - 17.9	4,400	♦	12.8	9.3 - 16.3	3,900	♦	18.9	14.8 - 22.9	5,700
San Diego	♦	13.7	9.9 - 17.6	5,900	♦	13.2	9.6 - 16.8	5,700	♦	19.1	14.9 - 23.4	8,300
San Francisco	♦	14.4	10.8 - 17.9	1,300	♦	12.0	8.6 - 15.3	1,000	♦	18.2	14.3 - 22.1	1,600
San Joaquin	*	18.2	14.3 - 22.1	1,800	*	18.8	14.8 - 22.9	1,800	*	25.2	20.9 - 29.6	2,400
San Luis Obispo	✓	10.5	7.7 - 13.4	300	♦	10.7	7.9 - 13.6	300	♦	17.7	14.2 - 21.2	500
San Mateo	✓	8.5	5.8 - 11.3	700	♦	10.4	7.3 - 13.5	900	✓	14.7	11.2 - 18.3	1,300
Santa Barbara	♦	17.3	13.9 - 20.7	1,000	♦	15.2	11.9 - 18.5	900	♦	22.8	19.0 - 26.6	1,300
Santa Clara	♦	11.7	8.6 - 14.8	2,700	♦	10.8	7.6 - 14.0	2,500	✓	16.0	12.4 - 19.7	3,700
Santa Cruz	♦	15.8	12.6 - 19.0	500	♦	14.4	11.4 - 17.5	400	♦	22.3	18.7 - 25.9	600
Shasta	*	20.1	15.9 - 24.4	400	*	17.3	13.4 - 21.3	400	*	27.6	23.0 - 32.2	600
Solano	♦	14.6	11.4 - 17.8	700	♦	15.9	12.4 - 19.5	800	♦	22.6	18.6 - 26.6	1,100
Sonoma	♦	14.1	10.8 - 17.5	700	♦	13.7	10.5 - 16.9	700	♦	19.0	15.3 - 22.7	900
Stanislaus	*	20.2	16.1 - 24.3	1,500	♦	16.8	13.1 - 20.5	1,300	*	26.5	22.1 - 30.9	2,000
Tulare	♦	12.5	9.4 - 15.7	900	♦	10.4	7.3 - 13.4	800	♦	17.3	13.6 - 21.0	1,300
Ventura	♦	15.4	11.8 - 19.1	1,600	♦	15.4	11.6 - 19.2	1,600	♦	22.4	18.1 - 26.6	2,300
Yolo	✓	8.5	6.1 - 11.0	200	✓	9.8	7.1 - 12.5	200	✓	15.0	11.8 - 18.2	400
<b>MIHA Region</b>												
Central Coast	*	16.1	14.3 - 17.9	4,600	♦	14.9	13.2 - 16.6	4,200	*	22.4	20.4 - 24.4	6,300
Greater Sacramento	♦	12.2	10.2 - 14.3	3,600	♦	12.1	10.1 - 14.1	3,500	♦	18.2	15.8 - 20.6	5,300
Los Angeles County	♦	13.9	11.2 - 16.5	17,400	♦	13.6	11.0 - 16.2	17,000	♦	20.9	17.8 - 24.0	26,000
Northern Mountain	*	17.2	14.6 - 19.8	2,200	*	17.1	14.4 - 19.8	2,200	*	25.2	22.1 - 28.3	3,200
Orange County	♦	14.9	10.9 - 18.9	5,500	♦	12.8	8.8 - 16.8	4,700	♦	20.2	15.5 - 24.8	7,400
San Diego County	♦	13.7	9.9 - 17.6	5,900	♦	13.2	9.6 - 16.8	5,700	♦	19.1	14.9 - 23.4	8,300
San Francisco Bay Area	✓	12.2	11.0 - 13.5	10,400	✓	11.6	10.3 - 12.9	9,900	✓	17.5	16.0 - 19.0	14,900
San Joaquin Valley	*	16.0	14.4 - 17.7	10,000	♦	15.0	13.4 - 16.6	9,300	*	22.3	20.5 - 24.2	13,900
Southeastern California	♦	14.1	11.8 - 16.4	8,900	♦	14.5	12.0 - 16.9	9,100	♦	19.9	17.2 - 22.7	12,600

Notes: MIHA is an annual population-based survey of California resident women with a live birth. Data from MIHA 2013-2015 were combined, resulting in a statewide sample size of 20,762. Prevalence estimate, 95% confidence interval and annual population estimate are weighted to represent all women with a live birth who resided in California in 2013-2015. Annual population estimate is a three-year average and rounded to the nearest hundred. Symbols indicate whether the prevalence estimate of women with symptoms of depression in the county or region were statistically different from the rest of the state (p-value < 0.05, chi-square test). See the Technical Notes for information on weighting, comparability to prior years and technical definitions. Visit the MIHA website at [www.cdph.ca.gov/MIHA](http://www.cdph.ca.gov/MIHA).